Environmental Impact and Infrastructure Assessment

475 Bedford Street
Lexington, Massachusetts

PREPARED FOR

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PREPARED BY

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DECEMBER 22, 2021

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Appendices

1 Introduction

1.1 Project Summary

This Environmental Impact and Infrastructure Assessment Report is submitted to the Town of Lexington as part of a Preliminary Site Development and Use Plan (PSDUP) Application for the 475 Bedford Street Redevelopment (the "Project"). The Project is located at 475 Bedford Street in Lexington, MA, and is a redevelopment of an existing 9.0-acre site that contains an existing sports and tennis club building, associated amenities and parking (the "Site") which was originally developed in 1965. The proposed redevelopment includes a 5-story, 225,500-SF lab/R&D facility with first floor retail space, pedestrian access, outdoor amenity space and a 4.5-story structured parking garage.

The PSDUP Application is seeking approval of a zoning amendment to change the designation of the current Residential – Single Dwelling (RO) to a Planned Development District (PDD). The current site use is and has been exclusively commercial. The site redevelopment will provide improvements and establishment of a life-science laboratory use on the site.

There is an existing Order of Conditions for the Site which allowed the tennis club to operate in the RO Zoning District. The Site history of development and site improvements by the Special Permits and Lexington reviews are listed as follows:

- July 1965; Approval to construct and operate a tennis and athletic club
- June 1967; Approval for site variance
- April 1969; Approval to construct four outdoor tennis courts
- August 1969; Approval to install a freestanding sign
- June 1972; Approval to permit the use of the tennis club and parking
- August 1974; Approval to permit minor site alterations
- August 1982; Approval to allow cafeteria/eating area for members only
- May 1987; Approval for interior renovations, reconstructed parking, new signage and construction of outdoor racquetball courts
- June 1993; Approval to permit a satellite receiving antenna on site
- August 2001; Approval to replace outdoor tennis courts with a swimming pool and additional parking
- January 2003; Approval for new signage at Boston Sports Club facility

1.1.1 Existing Site Description

The Site is located within the One Family Dwelling (RO) zoning district at 475 Bedford Street in Lexington, MA and is currently occupied by the Lexington Tennis Club. The Site has been used and operated commercially as a fitness facility since the 1960's. The Site is directly abutted by planned residential (Drummer Boy Condo Association), and government civic zones. An existing manufacturing (CM) zoning district is located directly across Bedford Street and extends further down Hartwell Avenue. A 30-ft natural gas easement bisects the Site separating the tennis club facilities to the west and existing surface parking lot to the east. An overhead electric transmission line within a maintained 250-ft utility right-of-way occupies the majority of the eastern half of the Site. The Town of Lexington 40-ft sewer easement is also located along the eastern property boundary.

The Site is bounded by Bedford Street to the south and southwest, the Commonwealth of Massachusetts Armory to the southeast, a utility transmission right-of-way and forested land to the east and northeast, and Drummer Boy Condominium development to the north and west. The Site is a substantially altered condition, with the current parking lot and buildings discharging stormwater runoff to the wetlands around the perimeter of the developed area. There is a natural tree line screening the Site to the north and the west from abutting properties.

The majority of the existing paved parking is at elevation 125'. The site generally slopes from west to east. The highest elevations are approximately 135' at the west property boundary along Bedford Street and northwest property boundary adjacent to Drummer Boy Way. The lowest elevations are approximately 120' along the eastern property boundary within the large wetland complex.

The most recently issued Flood Insurance Rate Map (FIRM) for the area, produced by the Federal Emergency Management Agency (FEMA), indicates that a minor portion of the Zone X floodplain extends across the southeastern area of the property. Reference 'Existing Conditions Plan of Land' for approximate location of Zone X floodplain.

Wetlands on the Site were delineated on April 20, 2021 by environmental scientists with Vanasse Hangen Brustlin, Inc. (VHB) in accordance with methods developed by the Bylaw, the DEP and the U.S. Army Corps of Engineers. The following sections of this narrative describe the wetlands and identify resource areas on the Site that are regulated under the WPA Regulations (310 CMR 10.00) and/or the Bylaw. Reference 'Existing Conditions Plan of Land' for locations of wetlands and resource areas identified.

Wetland resource areas identified on or near the Site include Bank, BVW, LUWW. These resources are defined under the WPA Regulations (310 CMR 10.00) as follows:

- Bank: As defined at 310 CMR 10.54 (2), a Bank is the portion of the land surface, which normally abuts and confines a water body. The upper boundary of Bank is the first observable break in slope.
- BVW: As defined at 310 CMR 10.55(2)(a) and (c), BVWs are 'freshwater wetlands that border on creeks, rivers, stream, ponds, and lakes.' The boundary of BVW is determined by the presence of 50 percent or more of wetland indicator plans and saturated or inundated conditions.
- Land Under Water Bodies and Waterways (LUWW): As defined at 310 CMR 10.56 (2), LUWW is the land beneath any creek, river, stream, pond or lake. The boundary of LUWW is the mean annual low water level.

The Bylaw also protects Isolated Vegetated Wetlands (IVW) and areas meeting only one criteria (vegetation or hydric soils).

1.1.2 Project Scope

The Project scope includes the following:

- Site improvements to support the Project including a proposed 5-story lab and office building with first floor retail, vehicular/pedestrian access, a proposed 4.5-level parking structure, surface parking, loading spaces, landscape and hardscape amenities, open space, and building utility service connections to public and private utilities;
- Environmental improvements including an overall reduction of impervious area, restoration of the 25-ft wetland buffer zone, reduction of surface parking from the 25-ft and 100-ft buffer zones, minimizing impact to an existing on-site wetland, and promoting stormwater quality and stormwater Best Management Practices (BMPs);
- Proposed fill of approximately 1,300 SF of (man-made) isolated wetlands, fill of no more than 4,900 SF of bordering vegetated wetland, and complete wetland replication (2:1) area increasing the existing wetland complex. Exact location of the proposed wetland replication is still being coordinated with the Lexington Conservation Commission.

The Applicant is limiting the Project to redevelop the areas previously disturbed by the existing development. Furthermore, the proposed building and structured parking are consolidated on the west half of the Site. Existing gas, sewer and overhead utility easements create a non-advantageous scenario for any future development on the east half of the Site. A Site Constraints visual representation of the existing easements is attached as an exhibit to this report for reference. The Project proposes an increase in open space, a reduction of impervious area, minimal impacts to public infrastructure, and the betterment of the existing wetland complex by ways of wetland replication and proposed stormwater BMPs. Invasive Species Management is also being considered to mitigate some of the existing conditions on site.

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Environmental Impact Assessment

2.1 Stormwater and Groundwater

2.1.1 Existing Conditions

The Site is approximately 9.0-acres of land, which includes approximately 114,850 SF (2.64-acres) of bordering vegetated wetlands. The Site is within the Charles River Watershed. Based upon USDA – Soil Conservation Service Maps for Lexington, the underlying soils within the Site include the following:

- Freetown Muck; HSG B/D
- Udorthents-Urban Land Complex HSG Not Listed
- Charlton Urban Land – Hollis Complex; HSG A

A Geotechnical Evaluation Memo was prepared by Sanborn Head & Associates (Appendix A). Test pit excavations were recently conducted and the findings from those investigations were incorporated into the attached geotechnical memo. Based on the initial investigations, groundwater levels at the site are estimated to be between 4'-0" and 6'-8" below ground surface. As the Project is further developed, subsurface testing will be performed to determine the specific groundwater elevations, infiltration rates, and confirm the soil classifications to be incorporated into the Project's stormwater management design. See Appendix A for additional soils information.

The site generally slopes from west to east with some of the abutting property (west) and the entirety of the site ultimately discharging to the existing wetland complex located to the north and east of the surface parking area. The roof runoff from the existing gym facilities is conveyed via a combination of pitched and flat roofs, gutters and downspouts. The downspouts discharge to ground at the front of the building and at the back of the building, but all runoff is conveyed to the existing wetland complex. Stormwater runoff generated by the northern half of the existing parking lot is conveyed via continuous curb, collected in a series of catch basins and then conveyed to a pretreatment system. Runoff is ultimately discharged to the wetland complex in the northern part of the site. The abutting property to the west, existing outdoor amenity space and southern half of the existing parking lot is conveyed via overland flow, area drains, drainage pipe and continuous curb, collected in a series of catch basins, and then conveyed to a pretreatment system. Runoff is ultimately discharged to the wetland complex in the southeastern part of the site via 12" RCP.

The wetlands located on site are part of a larger wetland complex which extends beyond the property boundaries to the north and east. There are currently no connections to the Town of Lexington storm sewer system. No water quality volume is provided, and no stormwater detention is provided on site in the existing conditions.

2.1.2 Proposed Conditions

The Project proposes a 225,500 SF five-story laboratory/office building with ground floor retail, outdoor amenity space and a 4.5-level structured parking garage including approximately 343 spaces. The surface parking is reconfigured to better align with the dimensional standards set by the Town of Lexington. The Project proposes access drives, loading, pedestrian sidewalks, landscaped areas and connectivity to the existing Lexington trail system. The pedestrian sidewalk along Bedford Street will be maintained and enhanced with a possible future connection to Drummer Boy Way. The access point to the Site is proposed to be reconfigured to prohibit left turns out of the Site as requested by Town Departments and the Public.

The Project proposes to include work within 100 feet of a resource area and direct impacts to regulated bordering vegetated wetlands (BVW). These activities fall under the jurisdiction of the Lexington Conservation Commission and the Massachusetts Wetlands Protection Act. The Massachusetts Department of Environmental Protection (DEP) Stormwater Management Regulations and the Town of Lexington Stormwater By-Law will require the design of drainage system(s) to manage stormwater runoff in accordance with the DEP and Town of Lexington Stormwater Management Standards. The applicant has been and will continue to work with the Lexington Conservation Commission to meet all town requirements.

Stormwater mitigation methods being considered for the Project include:

- Improvements to the 25-, 50- and 100-foot buffer zones that include reduction of parking and impervious surfaces. Currently, portions of 49 surface parking spaces are located within the 25' wetland buffer. All of these will be removed under the proposed design. The applicant is proposing to create 22 shadow parking spaces in the 25' wetland buffer to be coordinated with the Conservation Commission. These parking spaces will be pervious material, either stone dust or structured grass.
- Impervious surfaces within the 25' wetland buffer will be removed to the maximum extent practical, thereby restoring the natural vegetated 25' wetland buffer. The parking structure will be located entirely outside of the 25' wetland buffer.
- The Project maintains the existing drainage patterns to the maximum extent practicable. The entirety of the project site still discharges to the large wetland complex, located to the north and east of the parking area. Stormwater runoff from the undisturbed abutting property will be conveyed to a culvert and discharged directly to the wetland complex in the southeast part of the site. All impervious areas (roof and pavement) will be collected and conveyed to multiple subsurface infiltration systems, including overflow outlets to the existing wetland complex. The infiltration systems will provide water quality treatment, groundwater recharge and reduce peak discharge rates to the resource areas.
- The Project will incorporate Best Management Practices (BMPs) and Low Impact Development (LID) designs that may include permeable pavers, subsurface infiltration systems, natural landscape plantings and proprietary separators. The Project will provide water quality to the runoff generated by impervious areas, mitigate peak rates and volumes by providing subsurface infiltration and retention, reduce the impervious areas within the wetland buffers, and promote groundwater recharge.
- The Project will also provide a water quality treatment with a 65% Phosphorus Removal rate as outlined in the MADEP Standards and in the Total Maximum Daily Load for Nutrients in the Lower Charles River Basin Study. Due to the overall project location within the Charles River watershed, Phosphorous Removal will be prioritized.

The design of the stormwater management system will be advanced during the design development and a final stormwater management report will be submitted to the Town.

The project proposes direct impacts (wetland fill and replication) to regulated BVW and therefore a Notice of Intent (NOI) will be filed with the Lexington Conservation Commission (the Commission) and the DEP. The NOI will be prepared to comply with the provisions of the MA Wetlands Protection Act (WPA) and the Town of Lexington Wetlands Protection Code (Wetland Bylaw).

See Appendix B – Stormwater Management Memo for a summary of the initial hydrologic analysis, proposed stormwater mitigation, drainage area plans, and BMP's to be used for the Project. A snow storage plan has also been developed for the site, see Appendix C.

2.2 Wildlife and Vegetation

The Project is located on a site that has previously been fully developed. The majority of the Site is impervious, including surface parking, paved access, existing buildings and outdoor hardscape amenities. Trees and shrubs line the north and west property boundaries. The

bordering vegetated wetlands (BVW) contains a variety of plant life, which will be maintained and protected during the Project's development, other than the proposed wetland fill area. There are mature trees surrounding the building and a few along Bedford Street. The Site does not contain any habitats of rare wildlife per the Natural Heritage and Endangered Species Program (NHESP) nor any known or potential vernal pools in the vicinity.

The Project proposes to maintain an existing vegetated screening buffer along the north and west property boundaries, providing a natural buffer between the Site and the abutting residential condominium complex. Tree loss will be focused to those adjacent to the existing buildings and proposed loading areas. The Project will use native and non-invasive species at proposed open space locations and outdoor amenities, complying with the Town of Lexington Plant Materials Guide. The Project will promote a variety of plant species and minimize the impact to existing vegetation.

2.3 Noise

A major source of noise currently is attributed to the vehicular traffic along Bedford Street adjacent to the Site. Potential new sources of noise may be attributed to the Project's rooftop mechanical equipment for heating, cooling, and ventilation for the proposed building. To mitigate these impacts, the building design will include a rooftop penthouse enclosure to dampen increase level of noises. The Applicant will ensure the building design and acoustic dampening equipment is in line with Massachusetts and Lexington noise regulations.

2.4 Air Quality

The Project is not anticipated to be subject to MEPA jurisdiction and the procurement of air quality permits for the facility is not anticipated. Air quality will directly benefit from careful selection of building materials and energy-efficient mechanical systems to reduce energy consumption. Additionally, the Applicant will promote the use of public transportation, carpools, and multi-modal transportation options for the proposed laboratory and office use to reduce single-occupancy commuter trips.

2.5 Lighting

Proposed site lighting will incorporate LED fixtures that meet dark-sky requirements and will be to the general architecture and style of the future development. Lighting will be designed at the pedestrian scale; placed to enliven the immediate site, outdoor amenity spaces and enhance site security perception. No lighting will interrupt adjacent parcels or residential areas.

2.6 Historical and Archaeological

The Project Site does not have any Historical or Archaeological Assets after a review of the MassGIS Oliver database and the Massachusetts Historical Commission files.

3

Infrastructure Assessment

3.1 Sanitary Sewer/Wastewater

Under existing conditions, the building on the Site is serviced by one sanitary sewer connection to the municipal sewer line in Bedford Street through a series of manhole connections. The existing connections are located on the south side of the existing building under the outdoor pool area and at the southeast corner. One 6" gravity line from the building sanitary system ultimately flows to the existing 15" VCP gravity sewer in Bedford Street. The gravity sewer main in Bedford Street transitions to a 24" VCP gravity sewer at the intersection of Bedford Street and Eldred Street. The 24" VCP sewer line in Bedford Street ultimately discharges to Lexington's Main Pump Station (SSPS-1) via cross-country installations to the south. The municipal sewer system is connected to the regional Massachusetts Water Resource Authority (MWRA) sewer collection system, and the wastewater ultimately flows to the Deer Island Wastewater Treatment Plan in Boston, MA for treatment and disposal.

Under existing conditions, it is estimated that the Site produces approximately 18,250 GPD of wastewater, based on actual water meter readings from the Lexington Water Department. No sanitary wastewater multiplier has been applied to the water consumption data. As currently proposed, the Project is estimated to produce approximately 30,625 GPD of sewage flow, which is a 168% increase in sewage generation compared to existing conditions. This estimate may vary depending on the final tenant of the proposed building. It should be noted that these estimates are based on the Mass DEP Title V design flows and

conservative design flow rates within the industry for laboratory/R&D uses (200 GPD); office (75 GPD); and retail (50 GPD) space. All unit rates are based per 1,000 SF of floor area. It is anticipated that this calculation is a conservative approach as the new water efficient fixtures in the proposed building will provide additional benefits over the existing outdated fixtures.

The capacity of the existing 15" VCP gravity sewer line in Bedford Street has been analyzed as part of this assessment. The capacity of the line is 2,290,000 GPD. Assuming a peaking factor of 4, the anticipated flow from the project site is 122,500 GPD, which is approximately 5.3 % of the full flow capacity of the 15" VCP gravity pipe.

The capacity of the existing 24" VCP gravity sewer line in Bedford Street has been analyzed as part of this assessment. The capacity of the line is 4,740,000 GPD. Assuming a peaking factor of 4, the anticipated flow from the project site is 122,500 GPD, which is approximately 2.6 % of the full flow capacity of the 24" VCP gravity pipe.

The net increase in sewage flow is less than 1% of the full flow capacity of the existing 24" VCP sewer line in Bedford Street which is an insignificant increase.

The Bedford Street sewer ultimately discharges to Lexington's Main Pump Station (SSPS-1). VHB has begun to analyze the capacity of the Brook Street Pump Station and has requested real time flow data from the Town of Lexington. Based on this data, VHB will determine the time of day the stations peak discharge generally occurs and also the peak discharge between normal business hours of 8am and 5pm as the majority of the flow from the proposed site is anticipated to occur during normal business hours. The increase in peak flow during normal business hours will be calculated and compared to the existing peak flow condition. If the project flow increases the daily peak, VHB will further study the operating parameters of the Lexington's Main Pump Station (SSPS-1) to determine if the increase will have a negative impact.

Based on the current finished floor elevation of the proposed building, site grades, and sewer inverts, it is anticipated that the connections from the project site will be gravity and no proposed pump station is required. All sanitary sewer discharge from the proposed building will meet federal and state requirements.

Refer to Appendix D for Sewer Capacity Analysis.

3.2 Water Supply and Fire Protection/Access

The existing development has two water connections servicing the existing building that connect to the water main in Bedford Street. Further survey is required to determine the sizes of the existing water main in Bedford Street and the building water service connections. The municipal water system is connected to the MWRA regional water distribution system, which is controlled locally by the Lexington Water Department. The water lines currently provide domestic and fire protection for the existing buildings.

Under existing conditions, it is estimated that the swim and tennis club uses on average approximately 18,250 GPD of water. As currently proposed, the Project is estimated to use approximately 33,700 GPD of water, which is a 185% increase in water usage compared to existing conditions. Hydrant flow testing will be performed and overseen by the Lexington

Department of Public Works to obtain water pressure and flow data for future design of the Project's domestic and fire protection water services. VHB does not recommend conducting a flow test during the winter season. Upon completion of the flow testing and receiving information from the fire protection engineer, the building proposes to reuse the existing 8" service line and/or provide a new service to the existing 12" water main in Bedford Street for domestic and fire service. Any on-site irrigation will be installed with a 'smartwater' system and sprinkler use will be restricted during the hours of 5AM to 8AM.

The Project will be designed to accommodate fire truck and emergency vehicle access. Hydrants will be proposed as needed and the building will be designed following the Massachusetts Building Code, Massachusetts Fire Code, and National Fire Protection Association (NFPA) regulations. A Fire Access Study Plan has been completed to analyze fire truck access. See Appendix E for the Fire Access Study Plan and Vehicle Turning Movements.

3.3 Stormwater

All the existing stormwater drainage structures and pipe onsite will be excavated, filled or abandoned in place during the redevelopment project. The Project will restore the 25' no disturb buffer surrounding the existing wetland(s). The Project will incorporate a variety of BMPs that include structural methods for mitigating peak runoff rates, providing water quality, approximating existing drainage patterns, and promoting infiltration to the maximum extent feasible, based on subsurface hydrogeology.

Due to the presence of the existing wetlands, the Project will be subject to an Order of Conditions by the Lexington Conservation Commission. Due to its status as a redevelopment, the Project's proposed stormwater management system(s) will meet the Ten (10) Stormwater Standards set forth by the Massachusetts Department of Environmental Protection (MassDEP) to the maximum extent feasible. The Project's stormwater management design will also follow the Lexington Stormwater Management By-law requirements.

3.4 Electrical

Eversource provides electrical services to the Town of Lexington. It is assumed that adequate electric grid capacity exists within Bedford Street to service the proposed use(s). As the Project is developed and the space of the proposed office/ lab building is further designed, a preliminary calculation of the projected electrical loads for the building will be performed and shared with Eversource. The Applicant will work with Eversource to ensure the Project has the required power.

3.5 Gas

National Grid provides natural gas services to the Town of Lexington. It is assumed that adequate natural gas pressure and capacity exists within Bedford Street to service the proposed Project. As the Project is developed and the space of the proposed office/ lab building is further designed, a preliminary calculation of the projected gas load for the

building will be performed and shared with National Grid. The Applicant will work with National Grid as they continue Project development.

SITE CONSTRAINTS | EASEMENTS

VIEW FROM BEDFORD STREET |
POWER LINES ABOVE ELECTRIC EASEMENT

Appendix A –

Geotechnical Evaluation

SANBORN HEAD
Building Trust. Engineering Success.

98 North Washington St
Boston, Massachusetts, 02114

Mr. Andrew Castraberti
Cresset Group
120 Water Street
Boston, Massachusetts, 01209

December 16, 2021
File No. 5055.00

Re: Summary of Subsurface Conditions and Site Hydrology
475 Bedford Street
Lexington, Massachusetts

Dear Andrew:

Sanborn, Head & Associates, Inc. (Sanborn Head) has prepared this letter to summarize the available subsurface soil and hydrogeologic information for the 475 Bedford Street (the Site) property in Lexington, Massachusetts. The information is in the letter is based of readily available on-line geologic information and a limited number of subsurface explorations test pits performed at the Site.

SUBJECT SITE DESCRIPTION

The Site is an approximately 9-acre parcel of land developed with a one-story recreation building, with an outdoor recreation amenity area and an associated parking lot. Landscaping and wetlands are present outside of the existing building, outdoor amenity and parking areas. The existing grade at the Site slopes gently downward from west to east from a highpoint on the western property boundary at approximate elevation (El.) 138.0 feet to a low point on the eastern property at approximate El. 120.0 feet.

SUBSURFACE SOIL AND WATER CONDITIONS

Based on the available information, subsurface conditions at the Site consist of the following layers from the ground surface down:

- Topsoil/Fill
- Organic Deposits (discontinuous)
- Silty Sand (Glaciolacustrine or Glaciomarine Deposits)
- Glacial Till
- Bedrock

A description of each geologic unit encountered is provided below:

- Topsoil – Outside of the building, amenity and parking areas, a layer of dark brown topsoil consisting of fine to coarse sand and silt should be expected within landscaped areas and could be up to 3 feet in thickness.

- Fill - The fill soils, varying in thickness, typically consist of brown Sand with varying amounts of silt and gravel is located below pavement in existing parking areas.

- Organic Deposit – In isolated areas of the existing parking area organic soils are present below the fill soil. The layer consists of either an organic silt and sand or peat material.

- Silty Sand or Sand and Gravel – A naturally deposited silty sand or sand gravel is below the surficial soils (Topsoil, Fill and Organic Soils). Based on soil mapping data, the deposit is classified as Glaciolacustrine or Glaciomarine deposits, indicating the material will consists of sand and silt, which is consistent with the test pits performed at the Site.

- Glacial Till Deposit – Based on soil mapping data a thin layer of glacial till is anticipated above bedrock at the Site. The glacial till is anticipated to consist of gray or brown well graded SAND with varying amounts of silt and gravel. This layer was not observed in the test pits.

- Bedrock – Based on soil mapping data, bedrock in the area is described as granite. Bedrock outcrops are visible at the ground surface to the west of the Site; however, the bedrock is anticipated to drop quickly towards the east. Bedrock was not encountered in the subsurface explorations performed at the Site.

Based on the subsurface explorations, groundwater levels were observed between El. 124 feet and El. 118.5 feet and generally follows the slope of the prevailing grade. Groundwater levels can be expected to fluctuate, subject to seasonal variation, local soil conditions, topography and precipitation.

Very truly yours,
SANBORN, HEAD & ASSOCIATES, INC.

Quincy Pratt, P.E.
Senior Project Manager

QP/SK: qp

cc: Sean Colella, PE ~ VHB, Inc.

P:\5000s\5055.00\Source Files\Stormwater Evaluation Memo\20191208 475 Bedfrod Street - Summary of Subsurface Conditions.docx

Appendix B –

Stormwater Management Memo

Memorandum

To: Karen Mullins
Lexington Conservation Commission
1625 Massachusetts Ave
Lexington, MA 02420

Date: December 22, 2021

Project #: 15233.00

From: Sean Colella, PE

Re: 475 Bedford Street Planned Development
Stormwater Memorandum

On behalf of our client, Cresset Lexington LLC (the "Applicant"), VHB is pleased to present the following memorandum outlining the conceptual stormwater management design for the proposed lab/office redevelopment at 475 Bedford Street (the "Project").

The Project is located within the One Family Dwelling (RO) zoning district at 475 Bedford Street in Lexington, MA and is currently occupied by the Lexington Tennis Club ("The Site"). The Site has been used and operated commercially as a fitness facility since the 1960's. The Site is directly abutted by planned residential (Drummer Boy Condo Association), and government civic zones. An existing manufacturing (CM) zoning district is located directly across Bedford Street and extends further down Hartwell Avenue. A 30-ft natural gas easement bisects the Site separating the tennis club facilities to the west and existing surface parking lot to the east. An overhead electric transmission line within a maintained 250-ft utility right-of-way occupies the majority of the eastern half of the Site. The Town of Lexington 40-ft sewer easement is also located along the eastern property boundary.

The Site is bounded by Bedford Street to the south and southwest, the Commonwealth of Massachusetts Armory to the southeast, a utility transmission right-of-way and forested land to the east and northeast, and Drummer Boy Condominium development to the north and west. The Site is a substantially altered condition, with the current parking lot and buildings discharging stormwater runoff to the wetlands around the perimeter of the developed area. There is a natural tree line screening the Site to the north and the west from abutting properties.

The Project proposes multiple improvements to the drainage system on site including stormwater recharge, reduction of peak rates of runoff for the 2-, 10-, and 100-year storms, reduction of impervious area within wetland buffers, and water quality treatment in excess of 80% TSS removal. The existing infrastructure will be replaced with a modern stormwater management system designed to meet or exceed the Massachusetts DEP and Town of Lexington Stormwater Management Standards.

Existing Conditions

The Project contains approximately 9.0-acres of land, 116,150 SF (2.67-acres) of which are state-regulated bordering vegetated wetlands (BVW).

The existing site was previously developed in the mid-1960s pursuant to Special Permits issued from 1965 to as recent as 2003. The existing development includes a multi-level, high-ceiling building, gym facilities, tennis courts, outdoor amenity spaces and pool areas. The Site is bounded by a residential condominium development to the northwest and north, Lexington Armory to the east/southeast, and Bedford Street to the south and southwest. There is a natural vegetated buffer screening the Site to the north-northwest. A large wetland complex abuts the Site to the north and east.

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The existing BVW located on the northern and eastern sides of the Site were identified in April 2021 by VHB's wetland scientist in conjunction with members of the Lexington Conservation Commission. These wetlands are immediately north of the existing parking lot and border the parking along its eastern side terminating at Bedford Street. Two smaller isolated wetlands (totaling approximately 1,300 SF) were also delineated at the back of the existing structure, on the western side of the site, likely as a result of poor site drainage and stormwater discharge from existing building downspouts. Sheet C1.00 shows the limits of the existing impervious areas located within the wetland buffers and a table summarizing the square footage.

The majority of the existing paved parking is at elevation 125'. The site generally slopes from west to east. The highest elevations are approximately 135' at the west property boundary along Bedford Street and northwest property boundary adjacent to Drummer Boy Way. The lowest elevations are approximately 120' along the eastern property boundary within the large wetland complex.

The site generally slopes from west to east with some of the abutting property (west) and the entirety of the site ultimately discharging to the existing wetland complex located to the north and east of the surface parking area. The roof runoff from the existing gym facility is conveyed via a combination of pitched and flat roofs, gutters and downspouts. The downspouts discharge to ground at the front of the building and at the back of the building, but all runoff is conveyed to the existing wetland complex. Stormwater runoff generated by the northern half of the existing parking lot is conveyed via continuous curb, collected in a series of catch basins and then conveyed to a pretreatment system. Runoff is ultimately discharged to the wetland complex in the northern part of the site. The abutting property to the west, existing outdoor amenity space and southern half of the existing parking lot is conveyed via overland flow, area drains, drainage pipe and continuous curb, collected in a series of catch basins, and then conveyed to a pretreatment system. Runoff is ultimately discharged to the wetland complex in the southeastern part of the site via 12" RCP.

The wetlands located on site are part of a larger wetland complex which extends beyond the property boundaries to the north and east. There are currently no connections to the Town of Lexington storm sewer system. No water quality volume is provided, and no stormwater detention is provided on site in the existing conditions. The attached Figure 1 shows the existing contributing drainage area map.

Based upon USDA – Soil Conservation Service Maps for Lexington, the underlying soils within the Site include the following:

- Freetown Muck, HSG B/D
- Charlton Urban Land – Hollis Complex, HSG A
- Udorthents-Urban Land Complex, HSG Not Listed

A Geotechnical Evaluation Memo was prepared by Sanborn Head & Associates (Attachment A). Subject site geology and hydrology were evaluated based on test pits taken at various points on the site. Based on this information groundwater levels at the site are expected to be between 4'-0" and 6'-8" feet below ground surface in some locations. As the Project is further developed, soil testing will be performed to determine seasonal high groundwater

depth, infiltration rates and confirm the soil classifications to be incorporated into the Project's stormwater design. See Attachment A for additional soils information.

Proposed Conditions

The Project proposes a 225,500 SF five-story laboratory/office building with ground floor retail, outdoor amenity space and a 4.5-level structured parking garage including approximately 343 spaces. The surface parking is reconfigured to better align with the dimensional standards set by the Town of Lexington. The Project proposes access drives, loading, pedestrian sidewalks, landscaped areas and connectivity to the existing Lexington trail system. The pedestrian sidewalk along Bedford Street will be maintained and enhanced with a possible future connection to Drummer Boy Way.

The Project proposes to improve the 25-, 50- and 100-foot wetland buffer zones on site by reducing parking and impervious area therein. The proposed parking structure will be located outside the revised 25-foot wetland buffer zone under the proposed replication in its entirety. Portions of the proposed parking structure will be located within the 50-foot and 100-foot buffers zones. Sheet C1.00 shows the limits of the existing impervious areas located within the wetland buffers and a table summarizing the square footage. The table below shows the proposed reduction in impervious areas on site in each of the wetland buffer zones (25, 50, and 100):

	0 to 25' Buffer Zone	25 to 50' Buffer Zone	50 to100' Buffer Zone
Existing Impervious Area ±(SF)	22,340	34,921	57,729
Proposed Impervious Area ±(SF)	7,022	27,960	56,829

For the purpose of our preliminary drainage analysis, the proposed site was split into multiple drainage areas, as shown in the attached Figure 2. The proposed site ultimately discharges to the existing wetland complex to the north and east, and therefore the model has only one design point for analyses comparison, DP-1. The Project maintains the natural drainage patterns to the extent practicable. Much of the Site along the perimeter will discharge to existing wetlands. All non-roof runoff will be captured and treated prior to discharge utilizing subsurface pretreatment and infiltration practices. The stormwater runoff generated by the remainder of the Site will drain to a stormwater BMP. The BMP's may include new catch basins with deep sumps and hoods that will convey the runoff to subsurface infiltration systems, porous pavement with infiltration. These systems will provide water quality treatment and recharge. The BMP's will be designed to treat the 1-inch water quality storm.

The Project will incorporate Best Management Practices (BMPs) and Low Impact Development (LID) designs that may include permeable pavers, subsurface infiltration systems, and proprietary separators. The Project will provide water quality to the runoff generated by impervious areas, mitigate peak rates and volumes by providing subsurface infiltration and retention, reduce the impervious areas within the wetland buffers, and promote stormwater recharge. The Project's stormwater design will comply with the MassDEP Stormwater Standards to the maximum extent practicable and will also follow the Lexington Stormwater Management By-law requirements.

MassDEP Stormwater Standards

The Project will comply with the MassDEP Stormwater Standards to the maximum extent practicable. The proposed project will improve the drainage infrastructure and provide water quality, recharge, and peak rate and volume mitigation to the Site. Overall, the Project will be a significant improvement over existing conditions.

Standard 1: No New Untreated Discharges or Erosion to Wetlands

The Project will be designed to fully comply with Standard 1. The Project proposes to restore the 25-foot wetland buffer surrounding the existing wetlands and reduce the amount of impervious area within the 50-foot and 100-foot buffers. No new untreated discharges to the wetlands are proposed and the wetlands will be protected from erosion during construction.

Standard 2: Peak Rate Attenuation

Standard 2 will be met by reducing peak rates and volumes to the maximum extent practicable. A preliminary analysis of the rainfall-runoff response of the Site under existing and proposed conditions was performed to size the proposed infiltration and detention systems. The analysis will continue to be updated as the Project is further developed.

Table 1
Peak Discharge Rates (cfs*)

Design Point	*2-year*	*10-year*	*100-year*
Design Point: DP-1			
Existing	2.11	9.31	33.95
Proposed	<2.1	<9.3	<33.9

Standard 3: Stormwater Recharge

The Project will be designed to fully infiltrate the required recharge volume.

Standard 4: Water Quality

The Project will be designed to provide water quality treatment of runoff from the proposed paved surfaces. The proposed stormwater management system implements a treatment train that will provide greater than 80% TSS removal of stormwater runoff from the proposed impervious surfaces using deep sump catch basins with hoods, proprietary water quality units, and subsurface infiltration systems.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPL)

The Project is considered a LUHPPL and has been designed to treat a 1" water quality volume.

Standard 6: Critical Areas

According to the Massachusetts GIS database, the Project is not located in or near an area of critical environmental concern.

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable

The Project is considered a redevelopment and will comply with the Stormwater Management Standards to the maximum extent practicable.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Controls

The Project will disturb more than one acre of land and is therefore required to obtain coverage under the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit (final land area disturbance dependent). As required under this permit, a Stormwater Pollution Prevention Plan (SWPPP) will be developed before land disturbance begins.

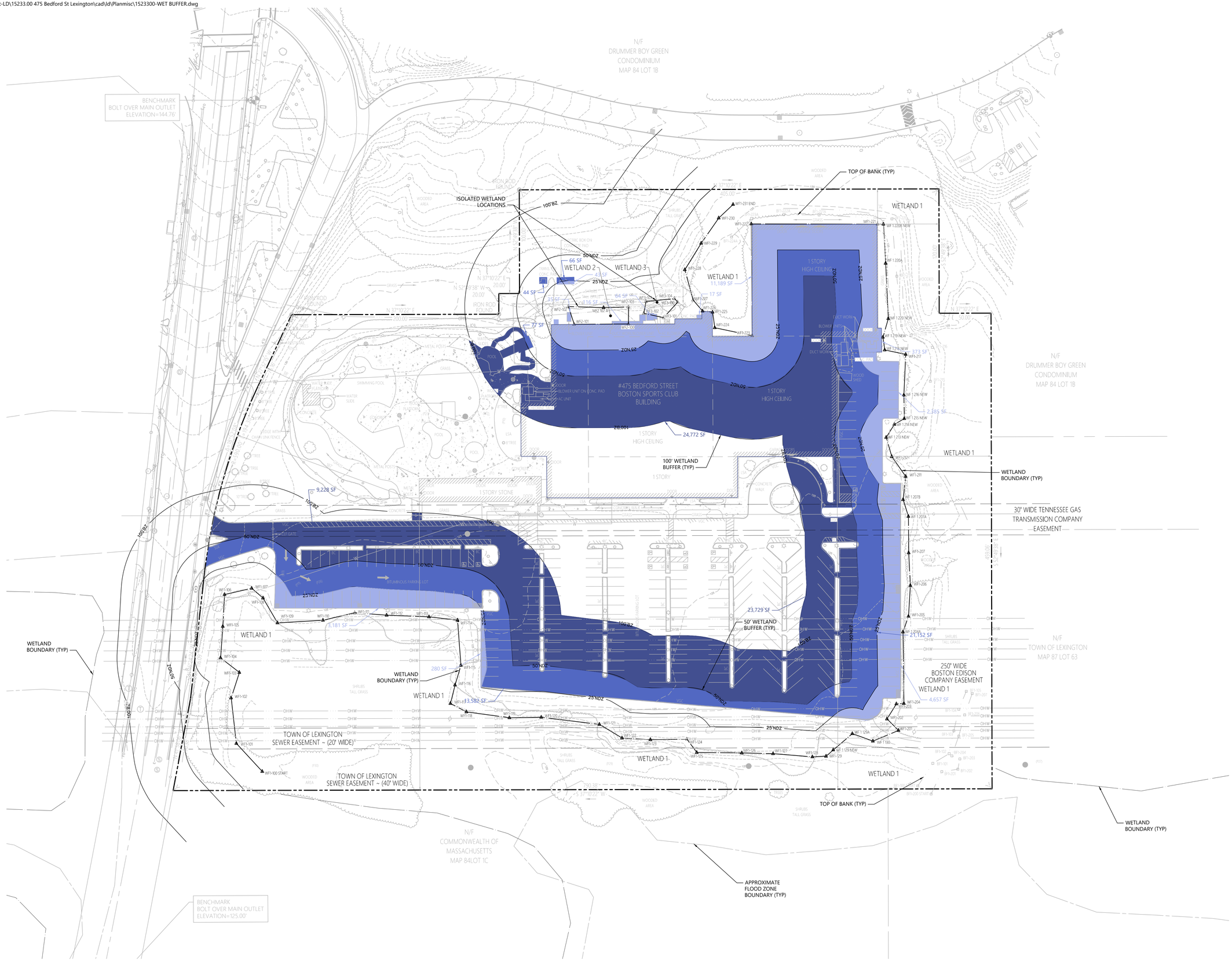
Standard 9: Operation and Maintenance Plan

A post-construction Stormwater Operation and Maintenance (O&M) Plan will be developed for the Project as the design is further progressed.

Standard 10: Prohibition of Illicit Discharges

Sanitary sewer and storm drainage structures remaining from previous development which are part of the redevelopment area will be removed or will be incorporated into updated sanitary sewer and separate stormwater sewer systems. The Project has been designed so that it is in full compliance with current standards. No statement is made regarding the drainage system in portions of the Site not included in the redevelopment project area. A Long-Term Pollution Prevention Plan will be developed for the Project as the design is further progressed that will include measures to prevent illicit discharges.

Figures



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Total Impervious Area; Existing Conditions

25-FT Buffer:	22,340 SF
50-FT Buffer:	34,921 SF
100-FT Buffer:	57,729 SF
	114,990 SF TOTAL

475 Bedford Street Redevelopment

Lexington, Massachusetts

No.	Revision	Date	Appvd.

Designed by | Checked by

Issued for | Date

September 8, 2021

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Drawing Title

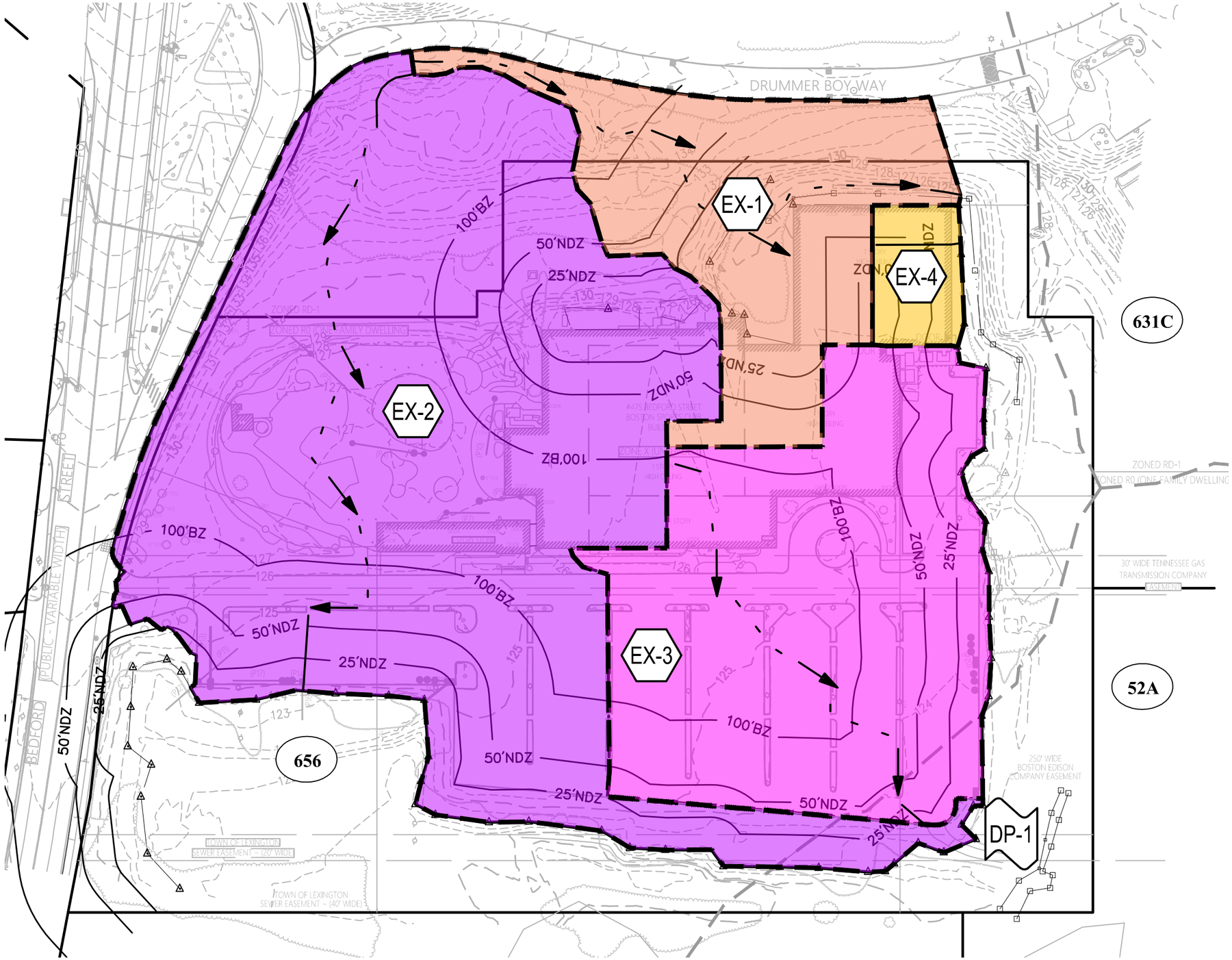
Existing Wetland Buffer Impervious Area Summary: Existing Conditions

Drawing Number

C1.00

Sheet 1 of --

Project Number 15233.00



Legend

SYMBOLS

- X — **DESIGN POINT**
- X — **DRAINAGE AREA DESIGNATION**

LINETYPES

- **DRAINAGE AREA BOUNDARY**
- **TIME OF CONCENTRATION FLOW LINE**
- **SOIL TYPE BOUNDARY**
- 25'NDZ — **25' BUFFER ZONE**
- 50'NDZ — **50' BUFFER ZONE**
- 100'BZ — **100' BUFFER ZONE**
- **WETLAND BOUNDARY**

SCS SOIL CLASSIFICATIONS

- 656 — **UDORTHENTS-URBAN LAND COMPLEX, 0 TO 15 PERCENT SLOPES, HSG B**
- 52A — **FREETOWN MUCK, 0 TO 1 PERSENT SLOPES, HSG B**
- 631C — **CHARLTON-URBAN LAND-HOLLIS COMPLEX, 3 TO 15 PERCENT SLOPES, HSG A**

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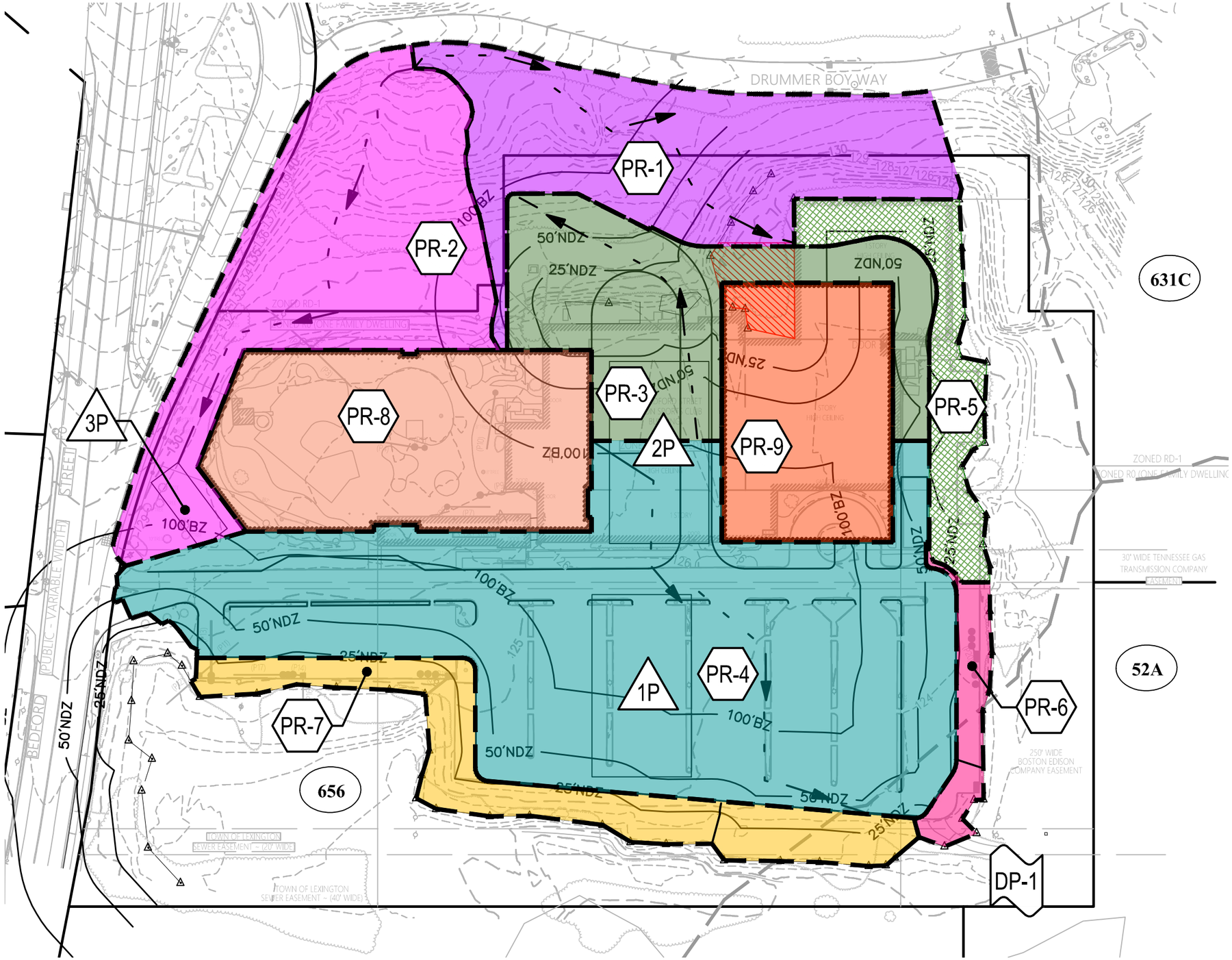
Existing Drainage Conditions
Bedford Street Planned
Development District
475 Bedford Street, Lexington, MA

Figure 1

11/23/2021



Legend

SYMBOLS

- DESIGN POINT
- DRAINAGE AREA DESIGNATION
- POND

LINETYPES

- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION FLOW LINE
- SOIL TYPE BOUNDARY
- 25'NDZ — 25' BUFFER ZONE
- 50'NDZ — 50' BUFFER ZONE
- 100'BZ — 100' BUFFER ZONE
- WETLAND BOUNDARY

SCS SOIL CLASSIFICATIONS

- 656 — UDORTHENTS-URBAN LAND COMPLEX, 0 TO 15 PERCENT SLOPES, HSG B
- 52A — FREETOWN MUCK, 0 TO 1 PERSENT SLOPES, HSG B
- 631C — CHARLTON-URBAN LAND-HOLLIS COMPLEX, 3 TO 15 PERCENT SLOPES, HSG A

0 40 80 160Feet

Proposed Drainage Conditions
Bedford Street Planned
Development District
475 Bedford Street, Lexington, MA

Figure 2

11/23/2021

Attachments

SANBORN HEAD
Building Trust. Engineering Success.

98 North Washington St
Boston, Massachusetts, 02114

Mr. Andrew Castraberti
Cresset Group
120 Water Street
Boston, Massachusetts, 01209

December 16, 2021
File No. 5055.00

Re: Summary of Subsurface Conditions and Site Hydrology
475 Bedford Street
Lexington, Massachusetts

Dear Andrew:

Sanborn, Head & Associates, Inc. (Sanborn Head) has prepared this letter to summarize the available subsurface soil and hydrogeologic information for the 475 Bedford Street (the Site) property in Lexington, Massachusetts. The information is in the letter is based of readily available on-line geologic information and a limited number of subsurface explorations test pits performed at the Site.

SUBJECT SITE DESCRIPTION

The Site is an approximately 9-acre parcel of land developed with a one-story recreation building, with an outdoor recreation amenity area and an associated parking lot. Landscaping and wetlands are present outside of the existing building, outdoor amenity and parking areas. The existing grade at the Site slopes gently downward from west to east from a highpoint on the western property boundary at approximate elevation (El.) 138.0 feet to a low point on the eastern property at approximate El. 120.0 feet.

SUBSURFACE SOIL AND WATER CONDITIONS

Based on the available information, subsurface conditions at the Site consist of the following layers from the ground surface down:

- Topsoil/Fill
- Organic Deposits (discontinuous)
- Silty Sand (Glaciolacustrine or Glaciomarine Deposits)
- Glacial Till
- Bedrock

A description of each geologic unit encountered is provided below:

- Topsoil – Outside of the building, amenity and parking areas, a layer of dark brown topsoil consisting of fine to coarse sand and silt should be expected within landscaped areas and could be up to 3 feet in thickness.

- Fill - The fill soils, varying in thickness, typically consist of brown Sand with varying amounts of silt and gravel is located below pavement in existing parking areas.

- Organic Deposit – In isolated areas of the existing parking area organic soils are present below the fill soil. The layer consists of either an organic silt and sand or peat material.

- Silty Sand or Sand and Gravel – A naturally deposited silty sand or sand gravel is below the surficial soils (Topsoil, Fill and Organic Soils). Based on soil mapping data, the deposit is classified as Glaciolacustrine or Glaciomarine deposits, indicating the material will consists of sand and silt, which is consistent with the test pits performed at the Site.

- Glacial Till Deposit – Based on soil mapping data a thin layer of glacial till is anticipated above bedrock at the Site. The glacial till is anticipated to consist of gray or brown well graded SAND with varying amounts of silt and gravel. This layer was not observed in the test pits.

- Bedrock – Based on soil mapping data, bedrock in the area is described as granite. Bedrock outcrops are visible at the ground surface to the west of the Site; however, the bedrock is anticipated to drop quickly towards the east. Bedrock was not encountered in the subsurface explorations performed at the Site.

Based on the subsurface explorations, groundwater levels were observed between El. 124 feet and El. 118.5 feet and generally follows the slope of the prevailing grade. Groundwater levels can be expected to fluctuate, subject to seasonal variation, local soil conditions, topography and precipitation.

Very truly yours,
SANBORN, HEAD & ASSOCIATES, INC.

Quincy Pratt, P.E.
Senior Project Manager

QP/SK: qp

cc: Sean Colella, PE ~ VHB, Inc.

P:\5000s\5055.00\Source Files\Stormwater Evaluation Memo\20191208 475 Bedfrod Street - Summary of Subsurface Conditions.docx

Appendix C –

Snow Storage Plan

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PROPOSED BUILDING
GROSS FLOOR AREA
=225,500 SF

PROPOSED PARKING
STRUCTURE
GROSS FLOOR AREA
=120,000 SF

PROPOSED SNOW STORAGE (TYP.). IN CASE OF SIGNIFICANT ACCUMULATION, EXCESS SNOW WILL BE TRUCKED OFF SITE

PARCEL AREA = 392,072 (9.001 ACRES)

#475 BEDFORD STREET
BOSTON SPORTS CLUB
BUILDING

ZONED RD-1
ZONED R0 (ONE FAMILY DWELLING)

ZONE X (UNSHADED)

ZONE X (SHADED)

WETLAND 1

WETLAND 2

WETLAND 3

N/F
DRUMMER BOY GREE
CONDOMINIUM
MAP 84 LOT 1B

N/F
TOWN OF LEXINGTO
MAP 87 LOT 63

30' WIDE TENNESSEE GAS
TRANSMISSION COMPAN
EASEMENT

250' WIDE
BOSTON EDISON
COMPANY EASEMENT

TOWN OF LEXINGTON
SEWER EASEMENT ~ (20' WIDE)

TOWN OF LEXINGTON
SEWER EASEMENT ~ (40' WIDE)

N/F
COMMONWEALTH OF

STREET

0 15 30 60 Feet

Bedford Street Planned Development District

475 Bedford Street
Lexington, Massachusetts

No.	Revision	Date	Appvd.

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Issued for | Date

Non-Regulatory Plans; PSDUP — Dec. 22, 2021

Not Approved for Construction

Drawing Title

Snow Storage Plan

Drawing Number

C4.00

Sheet 4 of 10

Project Number
15233.00

Appendix D –

Sewer Capacity Analysis

Memorandum

To: Ross Morrow, PE
Assistant Town Engineer
Town of Lexington
201 Bedford Street
Lexington, MA 02420

Date: December 22, 2021

Project #: 15233.00

From: Sean Colella, PE
Dale Horsman, PE

Re: 475 Bedford Street Redevelopment
Sewer Capacity Analysis Memorandum

On behalf of our client, Cresset Lexington LLC (the "Applicant"), VHB has prepared the following memorandum outlining the sewer system capacity analysis for the proposed lab/office redevelopment at 475 Bedford Street (the "Project"). The Project is located within the One Family Dwelling (RO) zoning district at 475 Bedford Street in Lexington, MA and is currently occupied by the Lexington Tennis Club (the "Site"). The Site has been used and operated commercially as a fitness facility since the 1960's. The Site is directly abutted by planned residential (Drummer Boy Condo Association), and government civic zones. An existing manufacturing (CM) zoning district is located directly across Bedford Street and extends further down Hartwell Avenue. A 30-ft natural gas easement bisects the Site separating the tennis club facilities to the west and existing surface parking lot to the east. An overhead electric transmission line within a maintained 250-ft utility right-of-way occupies the majority of the eastern half of the Site. The Town of Lexington 40-ft sewer easement is also located along the eastern property boundary. Attachment A depicts the proposed development and utility plan.

Under existing conditions, the building on the Site is serviced by one sanitary sewer connection to the municipal sewer line in Bedford Street through a series of manhole connections. The existing connections are located on the south side of the existing building under the outdoor pool area and at the southeast corner. One 6" gravity line from the building sanitary system ultimately flows to the existing 15" VCP gravity sewer in Bedford Street. The gravity sewer main in Bedford Street transitions to a 24" VCP gravity sewer at the intersection of Bedford Street and Eldred Street. The 24" VCP sewer line in Bedford Street ultimately discharges to Lexington's Main Pump Station (SSPS-1) via cross-country installations to the south. The municipal sewer system is connected to the regional Massachusetts Water Resource Authority (MWRA) sewer collection system, and the wastewater ultimately flows to the Deer Island Wastewater Treatment Plan in Boston, MA for treatment and disposal.

The sewer system is owned and operated by the Town of Lexington. This analysis shows there is adequate capacity in the municipal system to accommodate the proposed development. As part of the Preliminary Site Development and Use Plan (PSDUP) application process, the Engineering Department has requested this analysis be provided.

Introduction

The Town of Lexington requires that the gravity collection system be analyzed based on the expected sewage discharge increase from the Project. This capacity assessment will analyze the following:

- Current flow from Lexington's Main Pump Station;
- Current flow from the existing facilities at 475 Bedford Street;
- Future flow projections from the proposed Project; and

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- Review of Town of Lexington Sewer Record Plans

Current and Future Flows

Main Pump Station (SSPS-1)

VHB has been in contact with Ross Morrow PE, Town of Lexington Engineering Department, regarding the maximum discharge rate from the Main Pump Station (SSPS-1). VHB will work with the Town to determine the exiting peak flow rate to the pump station, the pumping capacity of the station, the wetwell volume, and the effects of the project on these parameters.

Current Flows from 475 Bedford Street

Under existing conditions, it is estimated that the Site produces 18,250 GPD (average daily flow) of wastewater, based on actual water meter readings from the Lexington Water Department. No sanitary wastewater peaking multiplier has been applied to the water consumption data.

Proposed Flows from 475 Bedford Street Project

As currently proposed, the Project is estimated to produce approximately 30,625 GPD of sewage flow. This estimate may vary depending on the final tenant of the proposed building. It should be noted that these estimates are based on the Mass DEP Title V design flows for a typical laboratory (200 GPD); office (75 GPD); and retail (50 GPD) space. All unit rates are based per 1,000 SF of floor area. It is anticipated that this calculation is a conservative approach as the new water efficient fixtures in the proposed building will provide additional benefits over the existing outdated fixtures. Refer to Attachment B – Estimated Sewer Generation.

Table 1
Summary of Existing and Proposed Sewer Generation (GPD)

Existing Sewer Flow (GPD)	Proposed Sewer Flow (GPD)	% Increase
18,250	30,625	168%

Gravity Sewer Capacity Analysis

The capacity of the existing 15" VCP gravity sewer line in Bedford Street has been analyzed as part of this assessment. The capacity of the line is 2,290,000 GPD. Assuming a peaking factor of 4, the anticipated flow from the project site is 122,500 GPD, which is approximately 5.3 % of the full flow capacity of the 15" VCP gravity pipe.

The capacity of the existing 24" VCP gravity sewer line in Bedford Street has been analyzed as part of this assessment. The capacity of the line is 4,740,000 GPD. Assuming a peaking factor of 4, the anticipated flow from the project site is 122,500 GPD, which is approximately 2.6 % of the full flow capacity of the 24" VCP gravity pipe.

The net increase in sewage flow is less than 1% of the full flow capacity of the existing 24" VCP sewer line in Bedford Street which is an insignificant increase.

The Bedford Street sewer discharges to Lexington's Main Pump Station (SSPS-1). VHB has begun to analyze the capacity of the Main Pump Station and has requested real time flow data from the Town. Based on this data, VHB will determine the time of day the stations peak discharge generally occurs and also the peak discharge between normal business hours of 8am and 5pm as the majority of the flow from the site is anticipated to occur during normal business hours. The increase in peak flow during normal business hours will be calculated and compared to the existing peak flow condition. If the project flow increases the daily peak, VHB will further study the operating parameters of the Main Pump Station to determine if the increase will have a negative impact.

Based on the current finished floor elevation of the proposed building, site grades, and sewer inverts, it is anticipated that the sewer connection from the Project will be gravity and no on-site sewer pump is needed. There is currently no proposed tenant but all sanitary sewer discharge from the buildings will meet federal and state requirements. See Attachment C – Pipe Capacity Analysis.

Attachments

PROPOSED 8' HT. ACOUSTICAL WALL
PROPOSED STRUCTURED GRASS FIRE ACCESS
EDGE OF PAVEMENT
PROPOSED OIL AND GAS SEPARATOR
PROPOSED 8" WATER MAIN
PROPOSED UNDERGROUND ELECTRIC TO BE COORDINATED WITH THE UTILITY COMPANY
PROPOSED 6" DOMESTIC WATER
PROPOSED 2" GAS
RE-USE EXISTING 8" WATER SERVICE TO CONNECT PROPOSED BUILDING
PROPOSED PERMEABLE PAVING OR PAVERS
PROPOSED BUILDING GROSS FLOOR AREA =225,500 SF
PROPOSED PARKING STRUCTURE GROSS FLOOR AREA =120,000 SF
PROPOSED 6" SEWER
PROPOSED DETENTION AREA
POTENTIAL SUBSURFACE STORMWATER MANAGEMENT AREA
PROPOSED OIL AND GAS SEPARATOR
PROPOSED STRUCTURED GRASS FIRE ACCESS
PROPOSED ROOF LEADERS (TYP.)
PROPOSED OUTLET PROTECTION (TYP.)
PROPOSED 6" SEWER
PROPOSED OIL AND GAS SEPARATOR
EDGE OF PAVEMENT
PROPOSED SANITARY SEWER MANHOLE
PROPOSED 8" WATER MAIN
PROPOSED FIRE HYDRANT
PROPOSED OIL AND GAS SEPARATOR
PROPOSED SHADOW PARKING; 22 SPACES
POTENTIAL SUBSURFACE STORMWATER MANAGEMENT AREA
POTENTIAL SUBSURFACE STORMWATER MANAGEMENT AREA
PROPOSED OIL AND GAS SEPARATOR

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0 15 30 60 Feet

Bedford Street Planned Development District

475 Bedford Street
Lexington, Massachusetts

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Drawing title

Site Utility Plan

Drawing Number

C3.00

Sheet 3 of 10

Project Number
15233.00

Saved Wednesday, December 22, 2021 11:45:34 AM NGESLAO Plotted Wednesday, December 22, 2021 4:28:19 PM Noah Geslao

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(617) 924-1770

Estimated Sewer Generation

Project: 475 Bedford Street PDD
Location: Lexington, MA

Proj. No.: 15233.00
Date: 12/22/2021
Computed by: SMC
Checked by: DAH

Block	Use	Area(SF)	Unit	Quantity	Unit Flow[1] (Gal/Unit)	Average Flow (GPD)	Total Block Flow (GPD)	Total Development Flow (GPD)	Comments
475 Bedford	Office	81,000	1,000 SF	81	75	6,075	6,075	**6,075**	
	Lab	121,500	1,000 SF	122	200	24,300	24,300	**24,300**	
	Retail	5,000	1,000 SF	5	50	250	250	**250**	
								30,625	
Existing							18,250	**18,250**	
							Net New	**12,375**	

1) *Average flows for Massachusetts are based on 310 CMR 15: Title V*

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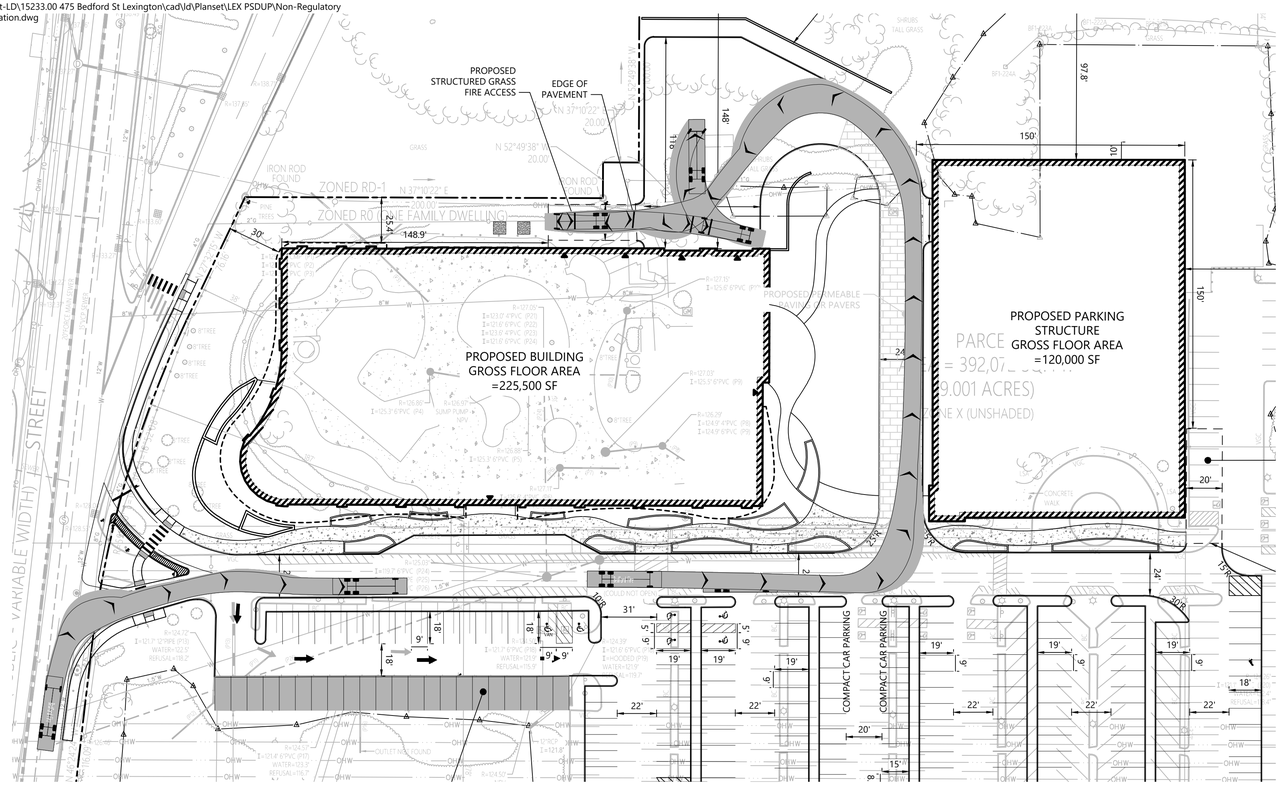
Sewer Capacity Calculations

Project	475 Bedford Street	Project #	15233.00
	Planned Development		
Calculated by	SMC	Date	12/22/2021
Checked by	DAH	Date	

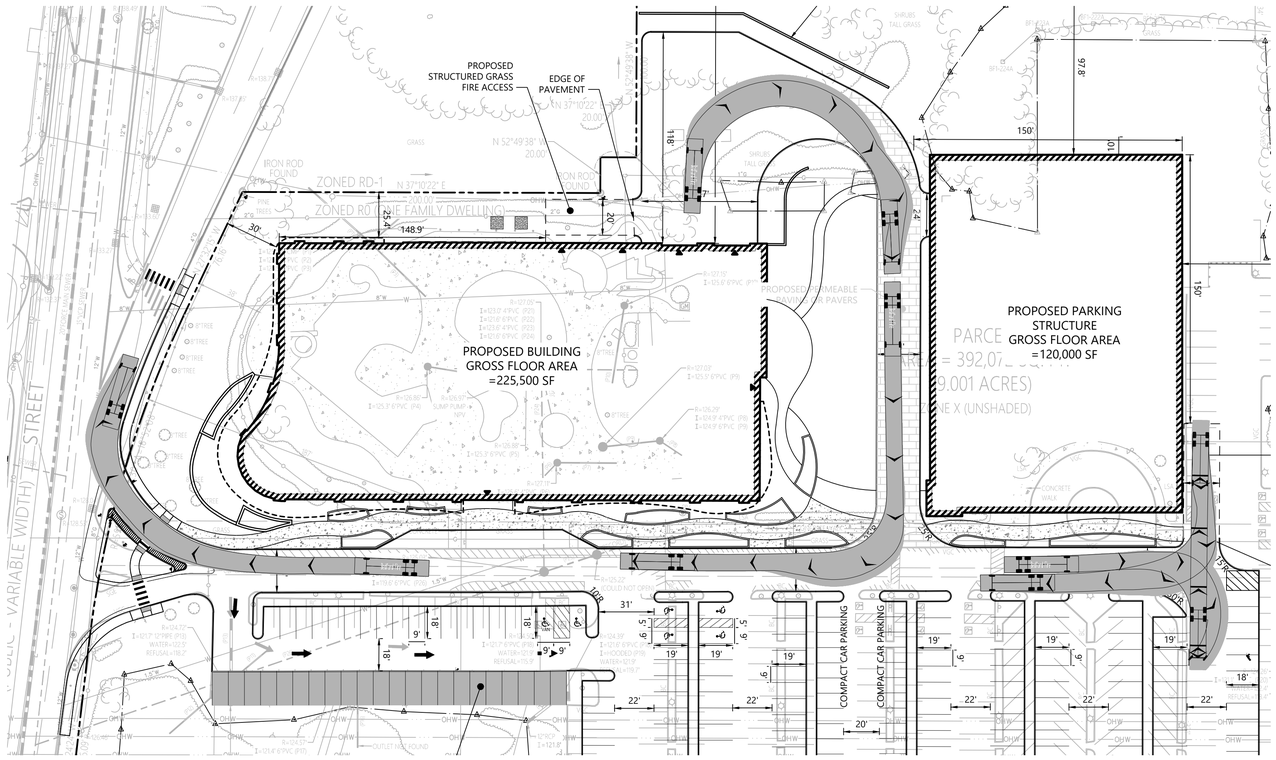
	LOCATION		DESIGN					CAPACITY			PROFILE						
DESCRIPTION	FROM	TO	Q	V	n	PIPE	SLOPE	Q full	Q full	V full	LENGTH	FALL	RIM	INV	INV	Cover	Cover
			cfs	fps		SIZE		ft^3/s	MGD	ft/s	ft	ft		UPPER	LOWER	Upstream	Downstream
15-in	Pt A	Pt B	0.000	#N/A	0.015	15	0.0040	3.54	2.29	2.9	545	2.18	117.0	113.2	111.0	2.6	4.8
24-in	Pt a	Pt B	0.000	#N/A	0.015	24	0.0014	7.34	4.74	2.3	315	0.44	117.0	109.9	109.4	5.1	-111.4

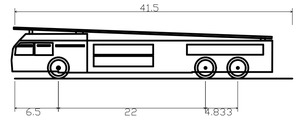
Appendix E –

Fire Access Study Plan and Vehicle Turning Movements



EMERGENCY RESPONSE





Ladder Truck

Overall Length	41.500ft
Overall Width	9.000ft
Overall Body Height	7.646ft
Min Body Ground Clearance	0.896ft
Track Width	9.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	41.00°

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0 20 40 80 Feet

Bedford Street Planned Development District

475 Bedford Street
Lexington, Massachusetts

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Drawing Title

Vehicle Circulation Plan

Drawing Number

C5.01

Sheet 5 of 10

Project Number
15233.00

A1 Appendix